

MSc Project



The Department of Radiology, Medical Physics is looking for a MSc

Development of a postprocessing pipeline for MREG

For the past 30 years functional magnetic resonance imaging (fMRI) has been developed as a non-invasive tool to indirectly detect neuronal activation via the associated hemodynamic response. Our research group has developed a method called magnetic resonance encephalography (MREG) that acquires fMRI data with a considerably improved temporal resolution (~100 ms). This acceleration enables the characterization of physiological signal fluctuations, e.g. arising from the cardiac cycle or respiration. However, it has recently been demonstrated that the MREG technique can also be used for investigation of the so-called glymphatic system, which measures and characterizes the flow of the cerebral spinal fluid within the brain. Using this method, it could be shown that the glymphatic system is impaired in various neurodegenerative and neurological disorders such as Alzheimer or epilepsy.

We are offering a **MSc project to students from the field of physics, computer science, engineering, or neuroscience** for the development of a dedicated MREG postprocessing pipeline, which shall be used for investigation of the glymphatic system and validated with recently acquired data from a study on borderline personality disorder.

Prior programming experience (ideally with Python or Matlab) is highly recommended.

We are looking forward to your application (in German or English) to:

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